

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Patent Application of

Atty Dkt. SCS-124-1111

C# M#

Confirmation No. 1768

HARRIS et al.

TC/A.U.: 3662

Serial No. 10/529,055

Examiner: T. Brainard

Filed: March 24, 2005

Date: February 23, 2009

Title: BISTATIC LASER RADAR APPARATUS



Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

☐ **Correspondence Address Indication Form Attached.**

☐ **NOTICE OF APPEAL**

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner twice/finally rejecting applicant's claim(s). \$540.00 (1401)/\$270.00 (2401) \$

☒ An appeal **BRIEF** is attached in the pending appeal of the above-identified application \$540.00 (1402)/\$270.00 (2402) \$ 30.00
(\$510 Appeal Brief fee previously paid November 26, 2007, without decision on merits)

☐ Credit for fees paid in prior appeal without decision on merits \$ ()

☐ A reply brief is attached. (no fee)

☐ Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s)
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☒ **CREDIT CARD PAYMENT FORM ATTACHED.**

Any future submission requiring an extension of time is hereby stated to include a petition for such time extension. The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140**.

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Signature: 



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APPEAL BRIEF

On Appeal From Group Art Unit 3662

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APPEAL BRIEF

Sir:

I. REAL PARTY IN INTEREST

The real party in interest in the above-identified appeal is QinetiQ Limited by virtue of an assignment of rights from the inventors to QinetiQ Limited recorded March 24, 2005 at Reel 16869, Frame 276.

II. RELATED APPEALS AND INTERFERENCES

This is the second set of appeals in this specific application, with a Pre-Appeal Brief Request for Review being filed on August 20, 2007 and a Decision by the Pre-Appeal Panel on September 26, 2007 requiring applicant to "proceed to

Board of Patent Appeals and Interferences” whereupon an Appeal Brief was duly filed on November 26, 2007. Surprisingly, in view of the fact that the Appeal Brief parroted issues raised in the Supporting Statement for the Pre-Appeal Brief Request for Review, instead of sending an Examiner’s Answer, the Examiner reopened prosecution with a non-final official action mailed on February 11, 2008.

A minor amendment in claim dependency was made on June 10, 2008 and the fourth and non-final Action was mailed August 22, 2008. A second Pre-Appeal Brief Request for Review was filed December 22, 2008 and a second Decision by the Pre-Appeal Panel requiring proceeding to the Board of Patent Appeals and Interferences was mailed January 16, 2009.

Accordingly, this is the second appeal and second Appeal Brief submitted in this application. Other than these appeals and Pre-Appeal Brief Requests for Review, there are believed to be no other related appeals, interferences or judicial proceedings.

III. STATUS OF CLAIMS

Claims 1-16 and 18-21 stand rejected in the fourth and non-final Official Action. Claims 1, 2, 6, 18 and 19 stand rejected under 35 USC §102 as being anticipated by Schneiter ‘362 (U.S. Patent 5,082,362). Claims 3-5, 7-10, 11-16, 20 and 21 stand rejected under 35 USC §103 as unpatentable over Schneiter

combined with one or more of Bowers, Carlson, Tocker, Holton and Evans. The above rejections of claims 1-16 and 18-21 are appealed.

IV. STATUS OF AMENDMENTS

No further response has been submitted with respect to the fourth and non-final Official Action mailed August 22, 2008.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants' specification and figures provide an explanation of the claimed invention set out in independent claims 1, 18 and 21, with each claimed structure and structural interrelationship addressed as to its location in the specification and in the figures.

“1. A bistatic laser radar device [as shown in Figures 4a and 4b and as described on page 11, lines 14-30 and elsewhere in the specification] comprising:

a transmit channel [channel 60 as shown in Figure 4a and as described on page 11, lines 14 to 21 and elsewhere in the specification] for forming a variable focus transmit beam, and

a receive channel [channel 62 as shown in Figure 4a and as described on page 11, lines 18 to 21 and elsewhere in the specification] for forming a variable focus receive beam, wherein the device is arranged such that all points of focus of

the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device [as shown in Figures 4a and 4b and described at page 11, line 23 to page 12 line 6 and elsewhere in the specification].”

“18. A bistatic laser radar device [as shown in Figures 4a and 4b and as described on page 11, lines 14-30 and elsewhere in the specification] comprising:

a transmit channel [channel 60 as shown in Figure 4a and as described on page 11, lines 14 to 21 and elsewhere in the specification] for forming a variable focus transmit beam, and

a receive channel [channel 62 as shown in Figure 4a and as described on page 11, lines 18 to 21 and elsewhere in the specification] for forming a variable focus receive beam, wherein the device is arranged such that all points of focus of the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device [as shown in Figures 4a and 4b and described at page 11, line 23 to page 12 line 6 and elsewhere in the specification], wherein each of said channels vary focus by movement along a movement axis [as shown in Figures 2a to 2c and discussed on page 8, lines 5-12 and elsewhere in the specification] and said movement axes are not parallel [shown a angle Θ in Figures 4a and 4b and discussed on page 11, lines 14-21 and elsewhere in the specification].”

“21. A bistatic laser radar device [as shown in Figures 4a and 4b and as described on page 11, lines 14-30 and elsewhere in the specification] comprising:

a transmit channel [channel 60 as shown in Figure 4a and as described on page 11, lines 14 to 21 and elsewhere in the specification] for forming a variable focus transmit beam, and

a receive channel [channel 62 as shown in Figure 4a and as described on page 11, lines 18 to 21 and elsewhere in the specification] for forming a variable focus receive beam, wherein the device is arranged such that all points of focus of the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device [as shown in Figures 4a and 4b and described at page 11, line 23 to page 12 line 6 and elsewhere in the specification], wherein said channels are separated by a distance S and each of said channels have a lens having a focal length of F [as shown in Figure 3 and discussed on page 8, lines 23-26 and elsewhere in the specification] and vary focus by movement along a respective movement axis [as shown in Figures 4a and 4b and discussed on page 11, lines 23-30 and elsewhere in the specification], wherein one of said movement axes define an acute angle θ with respect to the other of said movement axes and wherein $\tan \theta \approx S/F$ [as shown in Figure 3 and discussed on page 9, line 26 to page 10, line 4 and elsewhere in the specification].”

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, 6, 18 and 19 stand rejected under 35 USC §102(b) as being anticipated by Schneider '362 (U.S. Patent 5,082,362).

Claims 3-5 stand rejected under 35 USC §103 as being unpatentable over Schneider '362 in view of Bowers (U.S. Publication 2003/0184729).

Claims 7-10 stand rejected under 35 USC §103 as being unpatentable over Schneider '362 in view of Bowers.

Claim 11 stands rejected under 35 USC §103 as unpatentable over the Schneider '362/Bowers combination further in view of Carlson (U.S. Patent 3,554,646).

Claims 12 and 13 stand rejected under 35 USC §103 as unpatentable over Schneider '362 in view of Tocker (U.S. Patent 5,280,332).

Claims 14 and 15 stand rejected under 35 USC §103 as unpatentable over Schneider '362 in view of Holton (U.S. Publication 2002/0075472).

Claim 16 stands rejected under 35 USC §103 as unpatentable over Schneider '362 in view of Evans (U.S. Patent 6,323,941).

Claim 20 stands rejected under 35 USC §103 as unpatentable over Schneider '362 in view of Carlson.

Claim 21 stands rejected under 35 USC §103 as unpatentable over Schneider (whether the Examiner refers to Schneider '362 or Schneider '017 is not

specified, inasmuch as both Schneider references are of record – Appellants will presume the Examiner intended to reference Schneider '362) in view of Carlson.

VII. ARGUMENT

Appellants' arguments include the fact that the burden is on the Examiner to first and foremost properly construe the language of the claims to determine what structure and/or method steps are covered by that claim. After proper construction of the claim language, the burden is also on the Examiner to demonstrate where a single reference (in the case of anticipation) or a plurality of references (in the case of an obviousness rejection) teaches each of the structures and/or method steps recited in independent claims 1, 18 and 21.

The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that "[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim."

Furthermore, the Court of Appeals for the Federal Circuit has stated in the case of *In re Rouffet*, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998)

to prevent the use of hindsight based on the invention to defeat patentability of the invention, this court **requires** the examiner to show a **motivation** to combine the references that create the case of obviousness. In other words, the Examiner **must show reasons** that the skilled artisan, confronted with the

same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. (Emphasis added).

Finally, in its recent decision, the U.S. Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (April 2007), held that “[t]o facilitate review [of the Examiner’s reasons for combining references], this analysis should be made explicit.” *Id.* at 1396. The Supreme Court went on to say that it followed the Court of Appeals for the Federal Circuit’s advice that “rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” (emphasis added, the Supreme Court quoting from the Court of Appeals for the Federal Circuit in *In re Kahn*, 78 USPQ2d 1329 (Fed. Cir. 2006)).

A. The Examiner again appears to ignore the requirements that each independent claim requires a “bistatic” laser radar device

Where the preamble of a claim is “‘necessary to give life, meaning and vitality’ to the claim, then the claim preamble should be construed as if in the balance of the claim.” MPEP §2111.02 quoting *Pitney Bowes v. Hewlett-Packard Co.*, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). As discussed in the prior art, a transmit channel and a receive channel could be combined in many different ways.

Appellant's preamble specifies that they are combined in the manner of a "bistatic laser radar device" and thus gives "life, meaning and vitality" to the claim.

The preamble of each of Appellants' independent claims 1, 18 and 21 defines the claimed device as being a "bistatic" laser radar device. On page 1, line 3 of the present specification, the Examiner is taught that a "laser radar" is also known as a LIDAR (**L**ight **D**etection **A**nd **R**anging). It is specifically noted that, in order to be a laser radar device, a structure must have a coherent laser radar to as to enable the transmit beam to be accurately timed with respect to the receive beam to permit distance measurement and/or any Doppler shift in the frequency of the returned signal (Specification, page 1, lines 6-16).

On page 2, lines 1 to 4 of the specification, the difference between monostatic lidar systems and bistatic lidar systems is discussed (the monostatic lidar has common transmit/receive optics and the bistatic lidar has separate transmit and receive optics). Also, on page 2, lines 18-24 of the specification, bistatic lidar systems are discussed as having "non-parallel transmit and receive beams [that] can be arranged to intersect at a certain point thereby accurately defining a probe volume" but the transmit and receive beams must still be coherent in order to provide the desired Doppler shift measure of a LIDAR.

Therefore, a bistatic laser radar (LIDAR) device is a well-known class of devices to which Appellants' improvements relate.

B. The Examiner fails to demonstrate that the cited prior art teaches a “bistatic laser radar device”

Like the previously cited prior art, neither of the Schneider references (U.S. Patent 4,963,017, hereinafter Schneider ‘017, or U.S. Patent 5,082,362, hereinafter Schneider ‘362) contain any disclosure of a laser radar device or LIDAR device.

In fact, both Schneider ‘017 and Schneider ‘362 teach only “triangulation,” and both of these references specifically distinguish themselves from disclosing or using any LIDAR techniques. For example, both Schneider references state:

“Active echoing techniques, such as RADAR, SONAR and LIDAR employ emitted electromagnetic, acoustic and light energy, and monitor the reflected energy from the target surface. These techniques use a time-of-flight measurement [coherency] as a basis for determining range and are typically expensive and complex.

In machine vision research and application, **a different active technique called structured illumination has been employed** . .

. This structured illumination technique is called triangulation.”
(emphasis added, Schneider ‘362 at column 1, lines 28-37 and similar language in Schneider ‘017 at column 1, lines 14-20).

Importantly, neither Schneider reference requires any coherency between its transmit beam and its receive beam in order to determine the “time-of-flight” (to determine distance) and/or the Doppler shift (to determine speed of the target). The lack of coherency in both of the Schneider references confirms the lack of any laser radar (LIDAR) teaching and establishing that neither Schneider reference has anything to do with a LIDAR device, whether “bistatic” or “monostatic.”

Accordingly, because all claimed structures and claimed structural interrelationships are not shown in either Schneider reference, there can be no basis

for rejection of claims 1, 18 or 21 (or claims dependent thereon) under 35 USC §102, and the rejection is traversed.

C. The Examiner fails to demonstrate that the cited prior art teaches a “variable focus receive beam”

Each of independent claims 1, 18 and 21 recites “a receive channel for forming a variable focus receive beam.” The Examiner alleges in the outstanding Official Action that Schneider ‘362 (the Examiner in the Final Rejection reverses his position from the previous official action changing from the Schneider ‘017 reference to the Schneider ‘362 reference) teaches the claimed “receive channel for forming a variable focus beam” (See Fig 15a and col. 9, line 48 to col. 10, line 7).

However, the claim is to a variable focus bistatic laser radar beam, i.e., a LIDAR and no LIDAR beams, transmit or receive, are suggested in either Schneider reference.

Further, while the cited section of Schneider in the official action states that the lens 158 could be fixed, it does not disclose that the lens is moveable (needed to achieve a variable receive focus of a coherent LIDAR beam as required by the independent claims).

Without the claimed elements (moveable lens) and claimed interrelationship (variable focus) being disclosed there is no basis for rejection under 35 USC §102 or 103 and any further rejection is traversed.

D. No prior art reference teaches the claimed interrelationship that “all points of focus of the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device”

All of Appellants’ independent claims require that the points of focus of both the transmit and receive beams fall “on a common axis.” Again, these transmit and receive beams are coherent laser beams which are part of a LIDAR.

Not only do both Schneiter references fail to contain any disclosure of LIDAR beams, they have no disclosure of the claimed interrelationship of elements (points of focus “on a common axis”). Instead, both Schneiter references actually teach a triangulation (by definition a triangulation device needs non-common axes) of constant (non-coherent) laser optical beams in order to achieve the required distance measurement.

Without the claimed interrelationship (focus “on a common axis”) being disclosed in the prior art, there is no basis for rejection under 35 USC §102 or 103 and any further rejection is traversed.

E. The Examiner fails to allege that any other prior art reference teaches the claim elements and/or interrelationships which are missing from the Schneiter patents and thus no combination of cited art can establishes a prima facie case of obviousness

In the multiple obviousness rejections, the Examiner relies solely upon the Schneiter ‘362 reference to teach the bistatic laser radar device of claims 1, 18 and 21. The Examiner fails to allege that any other prior art reference (Bowers,

Carlson, Tocker, Holton or Evans) teaches any aspect of a LIDAR device, whether bistatic or monostatic. While it is assumed that the Examiner intended to reference Schneider '362 in the rejection of claim 21 (even though the particular Schneider reference was not otherwise identified) even Schneider '010 doesn't teach the claimed elements..

Accordingly, any combination of the cited prior art references would fail to disclose the independent claims 1, 18 and 21 components comprising a LIDAR device, let alone a "bistatic" LIDAR device, let alone the specifically claimed bistatic LIDAR device having variable focus transmit and receive channels in which all points of focus of the transmit and receive beams "fall on a common axis within the operable distance range of the device."

Therefore, even if it would have been obvious to pick and choose features from the cited references and then to combine them in the manner suggested only by Applicants' independent claims 1, 18 and 21, the *prima facie* case of obviousness has not been made by the Examiner.

Moreover, there is no explicit "analysis" as required by the US Supreme Court in the *KSR* case which demonstrates any rationale for combining references. As the "analysis" is required in order to establish a *prima facie* case of obviousness, the current rejections fall short of shifting the burden of proof to the Appellant.

F. The Examiner fails to appreciate that both Schneider patents would lead one of ordinary skill in the art away from Appellants' combination claims

As noted above, both Schneider references distinguish themselves from any LIDAR device and clearly suggest the disadvantage of such LIDAR systems as being "typically expensive and complex." As a result, the Schneider references would clearly lead those of ordinary skill in the art towards the cheaper and simpler "triangulation" technique for machine vision systems disclosed therein. This is not to mention the complex and expensive LIDAR systems in general, let alone the claimed "bistatic" LIDAR system with the claimed variable focus transmit and receive beams which have all points of focus falling on a common axis as required by all of the pending claims.

The Court of Appeals for the Federal Circuit has held that it is "error to find obviousness where references 'diverge from and teach away from the invention at hand'." *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Therefore, any *prima facie* case of obviousness made is rebutted by the references teaching away from the claimed combination.

G. There is no evidence of record supporting any *prima facie* case of "anticipation" rejection of claims 1, 2, 6, 18 & 19 under 35 USC §102(b) in view of Schneider '362

As noted in section A above, the pending claims all require specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose not only claimed structures but claimed interrelationships between structures

(thereby failing the *Lindemann* test) and therefore fails to support any rejection under 35 USC §102.

As a result, there is no evidentiary support for the rejection of independent claims 1 & 18, or claims 2, 6 & 19 dependent thereon, under 35 USC §102 and the rejection is respectfully traversed.

H. There is no evidence of record supporting any prima facie case of an “obviousness” rejection of claims 3-5 under 35 USC §103 over *Schneider* '362 in view of *Bowers*

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, *Schneider* '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from *Schneider* '362 are not disclosed in the *Bowers*, *Carlson*, *Tocker*, *Holton* or *Evans* references. Additionally, section E points out that there is no explicit “analysis” by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result, the limitations of claim 1, and thus dependent claims 3-5, are not disclosed in the combination of the *Schneider* '362 and *Bowers* references. Therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both *Schneider* references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both *Schneider* references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts any *prima*

facie case of obviousness made by the Examiner.

I. There is no evidence of record supporting any *prima facie* case of an “obviousness” rejection of claims 7-10 under 35 USC §103 over *Schneider* '362 in view of *Bowers*

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, *Schneider* '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from *Schneider* '362 are not disclosed in the *Bowers*, *Carlson*, *Tocker*, *Holton* or *Evans* references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the limitations of claim 1, and thus dependent claims 7-10 are not disclosed in the combination of the *Schneider* '362 and *Bowers* references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both *Schneider* references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both *Schneider* references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts any *prima facie* case of obviousness made by the Examiner.

J. There is no evidence of record supporting any *prima facie* case of an “obviousness” rejection of claim 11 under

**35 USC §103 over the Schneider '362/Bowers combination
in view of Carlson**

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from Schneider '362 are not disclosed in the Bowers, Carlson, Tocker, Holton or Evans references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the limitations of claim 1, and thus dependent claim 11 are not disclosed in the combination of the Schneider '362/Bowers and Carlson references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both Schneider references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both Schneider references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts any *prima facie* case of obviousness made by the Examiner.

K. There is no evidence of record supporting any *prima facie* case of an "obviousness" rejection of claims 12-13 under 35 USC §103 over the Schneider '362 in view of Tocker

As noted in section A above, the pending independent claims all require

specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from Schneider '362 are not disclosed in the Bowers, Carlson, Tocker, Holton or Evans references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the limitations of claim 1, and thus dependent claims 12-13 are not disclosed in the combination of the Schneider '362 and Tocker references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both Schneider references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both Schneider references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts any *prima facie* case of obviousness made by the Examiner.

L. There is no evidence of record supporting any *prima facie* case of an "obviousness" rejection of claims 14-15 under 35 USC §103 over Schneider '362 in view of Holton

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from Schneider '362 are not disclosed in the Bowers,

Carlson, Tocker, Holton or Evans references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the limitations of claim 1, and thus dependent claims 14-15 are not disclosed in the combination of the Schneider '362 and Holton references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both Schneider references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both Schneider references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts *any prima facie* case of obviousness made by the Examiner.

M. There is no evidence of record supporting any *prima facie* case of an "obviousness" rejection of claim 16 under 35 USC §103 over Schneider '362 in view of Evans

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from Schneider '362 are not disclosed in the Bowers, Carlson, Tocker, Holton or Evans references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the

limitations of claim 1, and thus dependent claim 16 are not disclosed in the combination of the Schneider '362 and Evans references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both Schneider references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both Schneider references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts any *prima facie* case of obviousness made by the Examiner.

N. There is no evidence of record supporting any *prima facie* case of an “obviousness” rejection of claim 20 under 35 USC §103 over Schneider '362 in view of Carlson

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from Schneider '362 are not disclosed in the Bowers, Carlson, Tocker, Holton or Evans references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the limitations of independent claim 18, and thus dependent claim 20 are not disclosed in the combination of the Schneider '362 and Carlson references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both Schneider references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both Schneider references teach away from any LIDAR system (regardless of whether bistatic or monostatic) clearly rebuts any *prima facie* case of obviousness made by the Examiner.

O. There is no evidence of record supporting any *prima facie* case of an “obviousness” rejection of claim 21 under 35 USC §103 over Schneider ‘362 in view of Carlson

As noted in section A above, the pending independent claims all require specific structures. As pointed out in sections B, C and D, Schneider '362 fails to disclose the claimed structures in independent claim 1. As pointed out in section E, the structures missing from Schneider '362 are not disclosed in the Bowers, Carlson, Tocker, Holton or Evans references. Additionally, section E points out that there is no explicit "analysis" by the Examiner (as required by the Supreme Court in *KSR*) to support the combination of the various references. As a result the limitations of independent claim 21, are not disclosed in the combination of the Schneider '362 and Carlson references and therefore there is no *prima facie* case of obviousness.

Additionally, as discussed in section F, both Schneider references would lead one of ordinary skill in the art away from the claimed combination of references. The fact that both Schneider references teach away from any LIDAR

system (regardless of whether bistatic or monostatic) clearly rebuts any *prima facie* case of obviousness made by the Examiner.

VIII. CONCLUSION

Neither Schneiter reference (nor any other secondary reference) teaches coherence between transmit and receive beams where such coherence is required by definition for a "laser radar device." There is no disclosure of any "bistatic LIDAR or "bistatic laser radar device" as claimed. There is no disclosure of both a variable focus transmit and receive beams which are coherent. There is no disclosure of transmit and receive beams with both points of focus falling on a "common axis." Even if components of the cited prior art were somehow combined, they would not form a LIDAR device as claimed, and, in fact, the primary Schneiter references clearly teach away from any bistatic LIDAR device thereby rebutting any obviousness case.

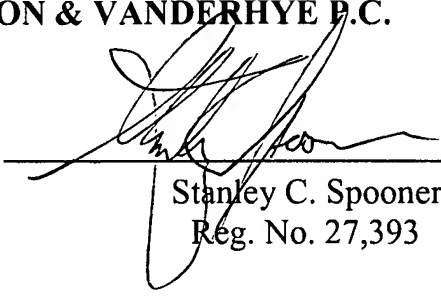
As a result of the above, there is simply no support for the rejection of Appellants' independent claims 1, 18 and 21 or claims dependent thereon under 35 USC §102 or §103. Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the Examiner unsupported rejections and find that the application is allowed on the existing claims.

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Serial No. 10/529,055

Respectfully submitted,

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SCS:kmm
Enclosure

IX. CLAIMS APPENDIX

1. A bistatic laser radar device comprising:
a transmit channel for forming a variable focus transmit beam, and
a receive channel for forming a variable focus receive beam, wherein the device is arranged such that all points of focus of the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device.
2. A device according to claim 1 wherein the transmit channel comprises a first optical arrangement configured to form the focused transmit beam and having at least one lens.
3. A device according to claim 2 wherein laser radiation is passed to the first optical arrangement via a transmit optical fibre cable.
4. A device according to claim 3 wherein the focus of the transmit beam is adjustable by variation of the relative position of the first optical arrangement with respect to the exit aperture of the transmit optical fibre cable.

5. A device according to claim 4 wherein the exit aperture is linearly translatable with respect to the first optical arrangement.
6. A device according to claim 2 wherein the receive channel comprises a second optical arrangement configured to form the focused receive beam and having at least one lens.
7. A device according to claim 6 wherein the second optical arrangement is configured to couple received radiation in to a receive optical fibre cable.
8. A device according to claim 7 wherein the focus of the receive beam is adjustable by variation of the relative position of the second optical arrangement with respect to the entry aperture of the receive optical fibre
9. A device according to claim 8 wherein the entry aperture is linearly translatable with respect to the second optical arrangement
10. A device according to claim 9 in which the exit aperture of the transmit optical fibre is linearly translatable along the optical axis of the first optical arrangement, and the entry aperture of the receive optical fibre is linearly

translatable along an axis arranged at a predetermined angle to the optical axis of the second optical arrangement.

11. A device according to claim 10 wherein the predetermined angle is calculated from the inverse tangent of the ratio of the separation of the transmit channel and receive channel to the focal length of the optical arrangement.

12. A device according to claim 1 and further comprising at least one additional receive channel.

13. A device according to claim 12 and comprising at least one additional receive channel to provide at least one additional receive beam, wherein the focus of the at least one additional receive beam is arranged to intersect the focus of the transmit beam within the operable distance range of the device.

14. A device according to claim 1 wherein the device configured to interact with a soft target.

15. A device according to claim 1 wherein the device configured to interact with a distributed target.

16. A device according to claim 1 wherein the transmit beam is formed from radiation having a wavelength in the region of $1.55\mu\text{m}$.

18. A bistatic laser radar device comprising:
a transmit channel for forming a variable focus transmit beam, and
a receive channel for forming a variable focus receive beam, wherein the device is arranged such that all points of focus of the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device, wherein each of said channels vary focus by movement along a movement axis and said movement axes are not parallel.

19. A device according to claim 18, wherein said movement axes define an acute angle.

20. A device according to claim 19, wherein each of said channels has an optical lens with a focal length F , one of said channels is displaced from the other of said channels by a distance S , said acute angle is θ and θ is defined by the equation: $\tan \theta \approx S/F$.

21. A bistatic laser radar device comprising:
a transmit channel for forming a variable focus transmit beam, and

a receive channel for forming a variable focus receive beam, wherein the device is arranged such that all points of focus of the transmit beam and all points of focus of the receive beam fall on a common axis within the operable distance range of the device, wherein said channels are separated by a distance S and each of said channels have a lens having a focal length of F and vary focus by movement along a respective movement axis, wherein one of said movement axes define an acute angle θ with respect to the other of said movement axes and wherein $\tan \theta \approx S/F$.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.